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The Role of the State and the Individual in Eugenics and Modern Genetics

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Appendix E - UNIVERSITY HONORS PROGRAM
SENIOR PROJECT - APPROVAL

Name: MELINDA F. COKER

College: ARTS & SCIENCES Department: COLLEGE SCHOLARS

Faculty Mentor: JOHN F.C. TURNER

PROJECT TITLE: The Role of the State and the Individual in Eugenics and Modern Genetics.

I have reviewed this completed senior honors thesis with this student and certify that it is a project commensurate with honors level undergraduate research in this field.

Signed: John Turner, Faculty Mentor

Date: 5th August 2003

General Assessment - please provide a short paragraph that highlights the most significant features of the project.

Comments (Optional):

Melinda has written a very strong piece which indicates a great deal of able thought and a considerable depth of research. With some corrections to the style and the addition of some more discussion, the work will be publishable in my opinion.

She has clearly used her scientific background to good use and I look forward to reading an updated version should she wish to pursue publication.

John Turner.

Summer 2003

As a part of Melinda Coker's senior project committee, I, Russel Hirst have read Ms. Coker's senior project and, having discussed it with her, approve of her work as meeting the requirements for the Honors Program. Please feel free to contact me for any further information.

Comments on project:

Good material, important theme -- M.S. needs further organization and signalling of organization (headings, transitions, "overviews," etc.; I have discussed these points w/ student) -- M.S. also needs stylistic improvement. Student is now at work on these revisions and will show me improved M.S.

M.S. shows good depth of research + thought; further effort could (eventually) result in publishable article.

Russel Hirst 7-30-03

signature date

Summer 2003

As a part of Melinda Coker's senior project committee, I, Dr. Roger C. Carroll have read Ms. Coker's senior project and, having discussed it with her, approve of her work as meeting the requirements for the Honors Program. Please feel free to contact me for any further information.

Comments on project:

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8/1/03

date

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Melinda Coker
Summer 2003
Advisor Dr. John Turner

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Introduction

This paper will discuss the rise of eugenics in relationship to the political and social environment present in Germany and the United States. The paper will also explore the government's influence with positive and negative eugenics as it intruded upon individuals' lives. Eugenics was used as a tool through which the government or people in positions of power could discriminate against certain groups within society. With researchers confirming increasingly more information about human genetics, individuals are offered more options with personal health and reproductive choice. Eugenic concerns again enter as a social concern when considering how individuals will react to their choices.

The Birth of Eugenics

Although there have been various definitions and assumptions concerning the word "eugenics," the classical definition stands as "that which pertains to or adapted to the production of producing fine offspring, especially in the human race" [OED]. The French physician Benedict Augustin Morel first conceived the notion of eugenics in the 1850s when he noticed that infant mortality were declining in France because of public health improvements (Lynn *Dysgenics* 2). Decades later the term itself was coined by English Hereditarian Francis Galton in his 1883 Inquiries into Human Faculty, where he substituted the term for what he had originally named "stirpiculture." Eugenics signified the quality of good breeding, much as breeders had selectively bred stock to isolate what were considered the best or desired qualities in animals and plants (Ellis 29). Galton first hinted at his epiphany in 1865 with his *Hereditary Genius*, where he wrote, "It would be quite practicable to produce a highly gifted race of men by judicious marriages during several consecutive generations" (Lynn *Dysgenics* 3). This ideal new race, Galton believed, could only be the product of consciously designed selection.

To summarize, Galton noted that in England the higher levels of society tended to produce less numerous and more intelligent children. The traits he most focused on were intelligence, health, and character; the last being defined by "strong moral sense, self-discipline, and good work motivation" (Lynn *Dysgenics* 3). He surveyed the pedigrees of men of eminent social standing (such as lawyers, statesment, doctors, etc.) and noted that these traits could often be traced directly from generation to generation within families. He concluded that somewhere within the framework of genetic transmission, these highly esteemed characteristics were passed on, and could even be heightened in future

generations by carefully selected unions. Society could achieve this higher state if the fertility of such "talented" individuals increased (Lynn *Dysgenics* 3). The problem to be tackled was the fact that the ruling and professional classes of society produced offspring at a lower rate, while the segments of society with lower socioeconomic standing tended to have more children. This inverse relationship supported Galton's argument that society was deteriorating genetically, demanding a call for action.

Ever since it arose, the concept of eugenics has been applied to policies, statements, motivations, and other plans of legal action focused on carrying out the goal of improving the gene pool. Eugenics was to replace the outdated process of improving the human species by natural selection (Lynn *Dysgenics* 4). The early supporters of the movement did not fully understand the microscopic structure of human biology. However, they believed biology should dictate social structures and policies like marriage, immigration, and education to name a few. The terms genetics and eugenics were often mistakenly interchanged. Although based on the principles of genetics, eugenics itself had little scientific standing (Lifton 23-24).

Mendelian Genetics

Before the discovery of DNA as the vector of transmission for genetic information and inheritance, most biologists and eugenicists believed single genes were inherited for one specific characteristic, physical or mental. The single-gene inheritance pattern was the most popular theory for explaining the passing of characteristics from parents to offspring. For the most identifiable and discreet traits, this was true. For example, in pea plants, pea color and texture followed the basic rules of dominance and

recessiveness in offspring. Mathematical formulae gave reliable percentages for specific traits (single-gene traits) expressed by successive generations.

Most researchers either did not welcome the challenge that many inherited characteristics were the product of multiple genes or they were the result of gene-environment interaction. A gene-environment interaction would be any type of contact with the environment through which a gene may be transformed, activated, or deactivated. While a few scholars did note the possibilities, even though the specific mechanism remained undetermined at the time, most biologists continued to submit all physical and mental inheritance to the basic single-gene inheritance pattern. To upper-class society—which at the time was becoming frustrated with immigration, education, and the social unease surrounding the two periods of world war—it seemed that social programs and welfare interests were misguided. They were ineffective because they were attempting to modify the inalterable—genes.

Positive and Negative Eugenics

The policies in the field of eugenics slightly diverge: positive versus negative eugenics. Positive eugenics are defined as policies that promote and support individuals with desirable characteristics propagating so that these features may be not only continued, but also increased, in the gene pool and future populations. Family planning, birth control, marriage counseling, and education are examples of positive eugenics programs. Negative eugenics, on the other hand, are classified as those which limit and discourage individuals with undesirable traits, whatever those may be, from reproducing. Negative programs like involuntary sterilization, abortion, and murder have been used

throughout history as a means to stop certain individuals from having children.

Ultimately, a basic principle of Mendelian genetics was applied across the board to all biological situations, and leaders in social, biological, and political fields applied the idea to all aspects of life. "While Mendel sought application and validation of his ratios only as to peas, the eugenicists proceeded to blanket use of these ratios in order to describe evolutionary genetics at a time scientific knowledge was quite primitive" (Smith 70). When applying this idea to a nation, the collective health of the nation was tied to the health of all its individuals; the stronger its constituent, the stronger the nation. All features that were believed to be weaknesses should be weeded out, separated, or disposed of to ensure the nation would no longer be plagued by their drawbacks. According to the leaders of various nations, weaknesses could be based on mental, physical, and even ethnic differences, depending on the prejudices and opinions of individuals in leadership; furthermore, the greater good for the nation overrode the freedoms of its citizens, subjects, or members.

The government assumed a proactive role in determining the extent of a nation's negative or positive eugenic policies; the government also guided, and to some extent, forced eugenic ideals into daily thought through the medical profession, local fairs, advertisements, education, and other efforts to raise social awareness of the supposed threat to the nation. Specifically, by promoting birth control, enforcing sterilization, and restricting immigration, policy makers attempted to provide eugenics with a mechanism by which the state could exert power over the gene pool. Totalitarian countries conducted the most extreme measures while forcing the submission of its members and professional groups. Still, the more democratic nations proposed policies that rivaled and

earned the admiration of proponents in the totalitarian sectors.

Several groups of eugenic enthusiasts set up their own codes of conduct based on eugenic goals. These new, radical sects voluntarily isolated themselves from the rest of the dregs of society and carefully charted out their genealogies to make pedigrees and note their progress as quality representatives of the human race. The opposite end of the spectrum held individuals who were singled out as parasites, those who brought down the rest of their nation and race (Lifton 16). Their very presence demanded action, some type of limitation on their impact on the rest of society in terms of genetic contribution, welfare programs, and education.

Totalitarian v. Democratic Governments

In the United States, which boasts a looser society in terms of personal freedoms and independent action, areas of eugenics activity were more isolated and tended to be subject to the whims of changing leadership. Totalitarian governments, on the other hand, were able to assume a more permanent control and structured eugenics role in society without needing the common consent of its people. "Eugenics illustrates the authoritarian and nationalist side to welfare, as it blended modern scientific explanations of poverty and techniques of enforcing orderly behaviour with nationalist ideology of a fit and efficient body politic and of devotion to future generations. The democratic rights of the individual were subordinated to higher 'national' priorities" (Weindling 135). Totalitarian leaderships completely disregarded the roles of individuals outside of their contributions to society.

The Weimar Republic and the Welfare State

In Germany, before the full onset of totalitarianism with the Nazi regime take over, a democracy was arranged after WWI, known as the Weimar Republic. "The Weimar constitution marked the birth of the German welfare state, which assumed responsibility for the health and welfare of the family. This expansion of the role of the state ended the policy prevailing during the Imperial Germany that welfare was a private philanthropic concern. ... The role of the Weimar state was redefined in terms of having a responsibility of maintaining the welfare of the total population" (Weindling 134).

With health being one of the greatest metaphors related to the strength of a nation, one profession in particular heavily tied to the government was the medical profession in Nazi Germany. Furthermore, "Medical science has for some time been an instrument of military power in that it preserved the health and fighting efficiency of troops," and under the Weimar Republic, the role and responsibility of medical doctors in improving and preserving the health of Germany grew (Sidel 1679).

German medicine set the standard in the medical field as it developed in the early 20th century. German doctors and medical researchers were greatly esteemed for their accomplishments in the health profession boosted by German successes. For example, Germany was the first nation to promulgate campaigns against alcohol, tobacco, asbestos, and other environmental toxins (Proctor 338). Leading German professors were also progressing in human anatomy and cataloging the intricacies in human physiology to gain a larger understanding of how the body works. In the late 19th century, Germany boasted a proud presence in medical research with its universities, laboratories, hospitals, and clinics, attracting the future leaders in American medicine. Many of these American

leaders visited or studied in Germany to participate in the extraordinary breakthroughs in biochemistry and experimental physiology (Barondess 311; Seidelman 331).

At the same time that emphasis was placed on the high quality of German medicine, Social Darwinism began to sweep the world. English philosopher Herbert Spencer coined the term "survival of the fittest," based on the idea that competition between individuals to survive and reproduce allowed the genetically more favorable to pass on their traits. Spencer, like Galton, was concerned by the trend that natural selection had seemed to break down in civilized societies, endangering modern society's fortitude.

After Charles Darwin's *Origin of Species*, some people made efforts to apply the principles of natural selection to the human population in social spheres. It was believed that natural selection had relaxed due to advances in technology and social welfare that superseded the ability of nature to separate the weak from the strong (Lynn *Dysgenics* 1). Social Darwinism caught the attention of the public as an answer to threat of social problems like overpopulation, poverty, and disease.

"The early leaders of the Social Darwinist movement in Germany included Alfred Ploetz, who, in 1895, wrote the founding document of what came to be known as racial hygiene, in effect an activist eugenics" (Barondess 312). During World War I, voluntary schemes for insurance and health care expanded and served as methods for establishing a national directory of health in Germany. The agencies opened during this period for the most part encouraged reproduction, vaccination, and sanitation and strove to counter "'racial poisons' like tuberculosis, venereal disease, alcoholism, and mental defects" (Weindling 138). "Social Darwinism, particularly as it emerged in Germany, early

stressed the need for state intervention on the basis of the idea that racial integrity was threatened because medical care had begun to destroy the natural struggle for existence and the numbers of poor persons and misfits was threatening to overwhelm the talented and able" (Barondess 312).

With the spread of eugenics, the focus shifted from raising the birth rate to improving the quality of the health of the population. "By the end of the 1920s semi-autonomous initiatives in welfare were becoming grouped together as centralized structures under dictatorial professional control," and coordinating these efforts at the national level united all activities and information into one area that could more easily be directed as the leadership wished (Weindling 135, 137).

Social Darwinists spoke against what they considered "therapeutic medicine and sentimental welfare" because they believed it tempered the desirable effects of natural selection, leaving society to suffer through the continued ills of hereditary diseases endangering the health of the entire society. Ploetz went on to argue that "if the fit were to be the primary survivors, counterselective forces should be avoided, including (perhaps especially) medical care for the weak, because this promoted reproduction among them" (Barondess 312). John Haycraft, a British Social Darwinist and contemporary of Ploetz, stated that leprosy and tuberculosis were actually "racial friends" since they often "attacked only those of weak constitution," thereby associating disease and illness with the outcasts of society (Barondess 312).

With the onset of World War II and its impending economic distress, health became a national priority for all parties in German society, and it was viewed as an area best left to professionals to address. With only a select group of individuals contributing

and formulating the new public policies, "Democratization of social policy was thus hindered" (Weindling136). While many saw the value of the Weimar Republic's efforts in health care, the new wave of nationalist leaders saw the need for a more dramatic method of increasing wellness; they aimed to support both positive and negative eugenic programs. Eugenicists successfully lobbied for state-financed counseling centers on marriage and genetics to advise prospective couples on birth control methods as a positive measure. The next step for eugenicists was establishing state support for sterilization.

The Nazi Takeover of Healthcare

The public hygiene programs and councils created under the Weimar Republic were either shut down and reestablished as new organizations supporting Nazi social ideology or revamped, taking on a more vigorous role in the public health of Germans. The clinics already formed helped serve as "a channel for introducing medical surveillance into daily life," and eugenic values permeated the system as social workers and medical personnel collected data on the diseased and healthy (Weindling 145). "Experts in social hygiene aimed to root out and destroy degenerate characters and their campaign in defense of the German family invoked terrifying threats of impending extermination" (Weindling 138). Then taking a more aggressive approach for eugenic ends in 1925, officials and government leaders tried to enforce compulsory attendance at clinics (Weindling 149).

Largely after World War I, the racial hygiene movement rapidly expanded to become established as a critical area within German biomedical science (Barondess 313).

"The core values of medicine, centered on compassionate and apolitical care of the sick, were profoundly and violently disrupted during the 1930s and 1940s, when the medical profession in Germany adopted the values and priorities of the Nazi state" (Barondess online). "The conversion of this early, relatively apolitical series of efforts into an element of state policy with powerful racist overtones was catalyzed with the help of Ploetz . . . and Fritz Lenz" (Barondess 313).

Lenz wrote to Ploetz that "race was the criterion of value " and "the State is not there to see that the individual gets his rights, but to serve the race. Lenz understood his advocacy to be one of 'organic socialism'" (Lifton 24). Lenz also coined the term "applied biology," which can be explained as applying science to social issues to achieve a hygienic and pure state. Central to this development is the idea of the Volk, or the "collectivity, people, or nation as embodiment of racial-cultural substance" (Lifton 46). In 1915, Alfred Hoche, a psychiatry professor, had described the end of individualism and, in its place, the birth of a greater purpose—a nation, higher organism, or Volk. Thus, it became more of a priority to improve or maintain the health of the whole rather than waste valuable resources on treating the ill. The biological metaphor extends so far as to explain that social ills are like representatives of disease, parasitism, and plague, which medicine must stop if the nation, (emphasizing the Aryan race,) is to be healed (Sofair and Kaldjian online).

With this philosophy in mind, Nazi leaders tried to solve the problems within the whole of Germany medically, and the state itself became the patient to doctors (Proctor, 342, Grodin 1682). Eugenics enthusiasts pushed for more state control over issuing marriage certificates, sterilization, and health institutions; these remedies were expected

to help somewhat heal the sickness and disease that plagued the nation and surfaced as social ills like economic depression (Lifton 16). "Once in power, the Nazi regime made sterilization the first application of the biomedical imagination to this issue of collective life or death" (Lifton 25).

Nazi Sterilization Policy

Voluntary sterilization was first advocated in 1921 by the German Society for Race Hygiene (Sofair and Kaldjian online). One year before Nazis took control, groups such as the German medical associations, the Reich Minister of the Interior, and the Prussian Health Council openly discussed the immediate need for mandatory sterilizations (Sofair and Kaldjian online). Six months after Hitler became Chancellor of the Third Reich in 1933, Minister of the Interior Wilhelm Frick introduced an early law for involuntary sterilization, the Eugenic Sterilization Law. The Law was quickly implemented and extended shortly thereafter to address those individuals with "mental retardation, psychosis, and serious genetic physical defects" (Lynn *Eugenics* 28).

The list of disorders included under the sterilization law is extensive, and this basic sterilization doctrine "set the tone for the regime's medicalized approach to 'life unworthy of life'" (Lifton 25). Those who were assumed hereditarily ill were lumped into the same fated category as those individuals who were considered legally insane, feebleminded, gravely malformed, schizophrenic, and congenitally blind, among others. In addition, ethnic groups such as the Gypsies, Jews, and Slavs were targeted. Individuals were identified based on their external physical features and social characteristics, segregated from the rest of society, and sterilized. The first stages in the

compulsory sterilization efforts rested on the institutions that provided care to the residents of those facilities.

"Special 'Hereditary Health Courts' were set up to make decisions on sterilization, their composition reflecting the desired combination of medicalization influence" (Lifton 25). The courts consisted of two physicians and a lawyer, and the overall ruling had the option of being appealed to a higher court by the family of the individual. "All physicians were legally required to report to health officers anyone they encountered in practice or elsewhere who fell into any of the preceding categories for sterilization, and also to give testimony on such matters unrestricted by the principle of patient-doctor confidentiality," attesting to doctors being tools of the Nazi state (Lifton 25). "The entire process was backed up by law and police power," giving the force with which doctors carried out state will a high level of legitimacy within the profession (Lifton 25).

Arriving at accurate number of sterilizations performed under Nazi control is vague at best since many records were destroyed or disappeared after World War II; however, by 1934, the hereditary health courts ordered 56,000 sterilizations of the 65,000 petitions heard. The courts reached a "eugenic conviction rate" of 87 percent. It is estimated that between the years 1934 through 1945, approximately 3.5 million individuals were sterilized under the Nazis (Barondess 314). Euthanasia soon accompanied sterilization.

Nazi Euthanasia Policy

After restricting the right of some individuals to reproduce by sterilization, Nazis sought to further control those who had the right to exist by engaging an active euthanasia program. In September 1939, Hitler issued an order for "mercy killing." Although never sanctioned by law, the issue was carried out in secrecy, allowing starvation, injection of morphine, and asphyxiation by gassing as suitable forms of killing patients (Sofair and Kaldjian online).

The policy began with addressing feebleminded children under the age of three and later extended the limit to age 16. Soon afterward the age boundaries blurred as a segue into a larger effort: the mercy killings followed with adults under the T4 program (Lifton 65). The program's killing activities were carried out under the guise of the Reich Work Group of Sanatoriums and Nursing Homes, which operated under Berlin Chancellery, located at Tiergarten 4 (giving the program its T4 code name) (Lifton 65).

The motives for euthanizing were considered to serve as both an economic measure and also as a mechanism for eugenics to cleanse the population of undesirables, of "valueless lives" (Sofair and Kaldjian online). German psychiatrists sent questionnaires to the superintendents of institutions to judge whether or not to euthanize the patient. The characteristics permitting patient-euthanization included "retardation, length of institutionalization, diagnosis, and other characteristics" that illuminated the psychiatrists to all the necessary requirements for the procedure. The evaluation did not require patient contact on the part of the psychiatrist, and the questionnaires alone served as the basis for analyzing the patients and judging their right to live.

The Common Welfare Ambulance Service transported patients to one of six

killing centers. Usually within 24 hours of arrival, the patient died directly at the hands of a doctor (Lifton 71). By eliminating the individuals occupying institutions, asylums, and hospitals, the state was free to direct these resources for its growing extensive military purposes. An estimated 70,000 residents of institutions, many of which were women and children, were poisoned or gassed and cremated in the early stages of the program (Barondess 314).

While the means with which to carry out the active extermination of prisoners came about under the Nazi regime, the roots allowing the state's right to kill extend from the late 19th century. In 1895, theorist Adolf Jost wrote *The Right to Death*, in which he explained this right in conjunction with maintaining the health of the Volk. Jost noted how the state already exercises the right to kill when individuals are sacrificed during war for the good of the nation. Once again, biological reasoning is placed into a social and political context: "The state must own death—must kill—in order to keep the social organism alive and healthy" (Lifton 46). When Hoche explained the concept of "unworthy life," he continued to explain that the therapeutic goal of the ridding society of such lives was "purely a healing treatment" for the state (Lifton 46). Killing would be the ultimate prerequisite for healing (Lifton 150).

Under the 14f13 program, an extension of T4, the "special treatment" was brought to the concentration camps (Lifton 134, 150). The euthanasia program served as a stepping-stone for the concentration camps that would hold all prisoners of the state, and 14f13 linked euthanasia with mass genocide (Lifton 128). When more space was needed for housing, the Nazis built concentration camps to contain prisoners who were viewed by their ethnic background as endangering the pure Aryan race, such as Jews,

homosexuals, and gypsies, or by their physical or mental attributes as diluting the gene pool. Hitler proposed a "final solution," a euphemism meaning extermination, to the ongoing "parasitic existence" of Jews, Slavs, and other undesirables in 1940 and set the Holocaust in movement, largely with the help of the medical profession (Lynn 27-29; Lifton 77).

The Role of Nazi Physicians

"In April 1933, Hitler asked that the German medical profession move into the forefront of the race question; racial hygiene was to be the task of the German physician, and German medicine responded" (Barondess online). While there was an oversupply of doctors in Germany in the 1930s, Jewish physicians were gradually disenfranchised through the racial laws and Nuremburg laws passed under the Nazis. After the purging of non-Aryans from medical schools and health institutes, the newly freed positions in the field in both clinical and laboratory areas were quickly replaced by non-Jewish physicians. The salaries of doctors notably increased, adding to physician satisfaction with the regime. Within a few years of the Nazi takeover, physicians' salaries had increased by 25 percent. "In the election of 1933 many young physicians, having been educated between 1920 and 1930 during a time of growing nationalism and massive unemployment (even for physicians,) voted for the National Socialist Party" (Barondess 1659). Among the first to support National Socialism, in 1929 doctors formed the National Socialist Physicians League having as its primary goals as supporting racial science and eugenics through Nazi ideas. The League became an arm of the state and controlled formal training centers where education combined both medicine and racial

policy.

Medical doctors were coerced into joining the Nazi party because the government required a clean Nazi record to sponsor any practice (Sofair and Kaldjian online). Estimates reveal that almost half of all physicians in Germany eventually joined the NSDAP (Nazi Party) and a quarter were in the SA. Also, compared to the rest of the employed male population, doctors were seven times more likely to be members of the SS.

"Nazi physicians . . . were seduced by power and ideology to view the state as their 'patient' and to see the extermination of an entire people 'treatment' for the state's health" (Grodin and Annas 1682). Doctors were expected to enforce Nazi state eugenic ideology in all aspects of life. "Physicians were encouraged to move from doctoring individuals to doctoring the nation" (Barondess 316).

As such, doctors were also the overseers selecting individuals in concentration camps and institutions for either death in gas chambers or crematoriums, labor, or experimentation purposes. They directly handled the human experimentation field in which unconsenting subjects (prisoners) were used for one of three experimental classes: military survival and rescue, medical treatment, or racial experiments (Jewish Virtual Library).

Doctors often selected the prisoners for the camps and the subjects for the experiments based on their race (Lifton 184). [See Appendix A for medical questionnaire upon which doctors evaluated patients and determined a patient's fate (Lifton 68-69).] While under Prussian rule, the state set a precedence for respecting life in experiments as early as 1900, and under a 1931 code, the Reich Health Office "strengthened sanctions

against inappropriate human experiments" (Proctor 342). Furthermore, the state issued its 1933 to expand protection to include animal cruelty in experimentation (Proctor 342; Childress 348).

Since Jews and other segregated groups of society were considered to be sub-human, the strict guidelines for experimentation on these individuals did not apply (Lifton 151). The official regulations requiring voluntary consent and barring research on minors, incompetents, and other vulnerable individuals, were easily ignored. Despite the sufficient grounds for protecting individuals involved in experiments, it was soon considered allowable to exploit prisoners as lab subjects and to turn subjects into victims and slave labor for the concentration camps (Seidelman 326). "Jews, other non-Aryans and those with genetic or mental imperfections became guinea pigs for German doctors and researchers" (O'Reilly 820). For some prisoners, their usefulness for Nazi doctors did not end with their life; many violated bodies and parts were used to fill German universities and laboratories with anatomical specimens and also served to represent their races in genetics studies and exhibits for museums on race hygiene (Seidelman 327).

Not only did medical doctors run cruel tests on their large source of test subjects and bodies, they also falsified death certificates for those they killed. The gas chambers of concentration camps could be cleared of the remains only after a doctor declared all the bodies dead. In all circumstances, doctors designated the causes of death, often falsely, to maintain an image of credibility. The cause of death was often a possible, but not present, condition that could loosely defended in the future, if it was necessary. The doctors left the dates of death blank on the certificate so that the Special Registry Office at each killing center could determine a suitable date for each patient, and this

information would later be added. The bureaucratic deception between administrators and physicians and the public and patients was extensive (Lifton 75).

The medical ethos changed during this period, and the profession assumed a new "hierarchy of human worth that demonized the infirm, the disabled, the genetically blighted," and refused service and care to "perceived enemies of the state and polluters of the purity of German blood" (Barondess 310-311). It was doctors who sent sick prisoners to gas chambers, conducted selections in the concentration camps, performed premarital examinations and screenings, probed the clinics and hospitals for any signs of disease in patients, and often signed falsified death certificates on fallen prisoners and political officials who fell out of favor (Barondess 317). "There is a series of recurrent themes in Nazi medicine: the devaluation and dehumanization of defined segments of the community, the medicalization of social and political problems, the training of physicians to identify with the political goals of the government, . . . and the bureaucratization of the medical role" (Grodin 1682). The German eugenics policies were comparable to the American eugenics programs. As will be revealed in the next section, the development of eugenics policies in the States took a somewhat different path due to its focus and lack of formal national government support.

Early American Eugenics

As mentioned in the previous section, the United States' eugenics policy was somewhat different in nature than German policies due to its political and government ideological differences. As eugenics grew in Britain in the late 19th century, ideas spread to America and began to inspire policy makers, politicians, and educators, especially in

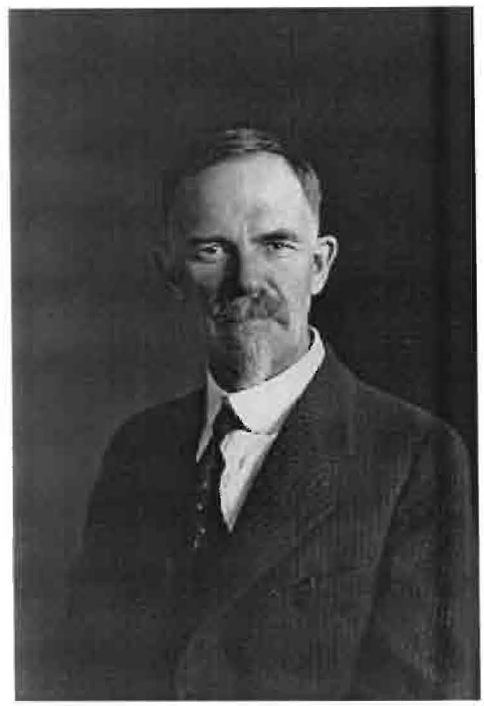
New England, where a social hierarchy more notably delineated the classes in the growing cities. American eugenics was not synonymous with the techniques and theory of eugenics in Germany that focused on preserving the Aryan race and the Volk; instead, American eugenicists focused on ridding the social ills in society by making policies based on socio-economic value and ethnic background. Still, eugenics involved limiting the poorer classes from having children, and promoting the richer classes to be fruitful. Alongside birth control, American eugenicists supported immigration restriction, marriage laws, and sterilization.

America, with its capitalist economic pathways, revealed that fortune and luck were often correlated with merit, as talent and hard work (Paul 18). Simply being born into a wealthy family or a family of high social prestige was not enough to earn the title of a "Goodly Nature." American citizens felt they had a great sense of social mobility and opportunity to advance up the socioeconomic ladder of success. Yet, merit and ability got one only so far in eugenicists' minds. Rather than noting difference as a starting point for developing a person's potential, eugenicists, espousing determinist heredity, saw these differences as revealing how incapable one was to improve one's situation (Selden 12).

Around the turn of the century, eugenics had noticeably invaded American social thought, and as the United States became a more powerful nation within the global community, citizens had a higher concern for preserving the strong American stock (Sofair and Kaldjian online). Just as in other nations, people were concerned with the problems that industrialization and immigration brought to the growing cities, adding

"dependency, delinquency, and pauperism" to social anxiety. Many began to feel that the social reforms in the early 20th century were a waste of time and energy (Selden 98).

Davenport and Early Eugenics Organizations



*Charles Davenport**

The philosophy behind eugenics stood as the key to the answer: disregard environment and stop trying to reform areas of society since the problem at hand lies in the hereditary material. Charles Davenport, a committed Mendelian eugenicist and leading figure in the field, wrote, "Modern medicine is responsible for the loss of appreciation of the power of heredity. ... [Medical professionals had] forgotten the fundamental fact that all men are created *bound* by their protoplasmic makeup and *unequal* in their powers and responsibilities" (Davenport iv in sic). Hereditarians concluded that if eugenics were to really improve the quality of future generations, there must be some type of control exerted on their "germ plasm" (Selden 2). Turning their impetus from the environment, social reformers began to rally around eugenics as the salve to perceived social ills.

In 1903, early American eugenicists formed the American Breeders Association (ABA), which in 1913 was renamed the American Genetics Association in 1913. Under Davenport, early ABA members formed a Committee on Eugenics to research the

transmission patterns for legitimate and illegitimate heritable human traits like laziness, wanderlust, and pauperism. The committee started a series of research groups to "investigate and report on heredity in the human race, and emphasize the value of superior blood and the menace to society of inferior blood" (Selden 4). Topics of discussion ranged from a variety of areas, both social and genetic: epilepsy, shiftlessness, genealogy, eye defects, and criminality, to name a few. Feeblemindedness was one of the most popular traits followed, and the category was used to cover all degrees of mental weakness. [See Appendix B. for scale on mental weaknesses.]

As the first director of the privately funded Eugenics Record Office (ERO) in Cold Spring Harbor, Davenport investigated work on the behavior of dominant and recessive genes in humans. His book *Heredity in Relation to Eugenics* (1911) was the founding statement on eugenics in the United States. As a nativist with Puritan roots, Davenport was concerned with the dysgenic pattern he sensed in American society and warned, "the best of the grand old New England stock [was] dying out through a failure to reproduce" (Selden 4). He wrote, "Man is an organism—an animal; and the laws of improvement of corn and or race horses hold true for him also. Unless people accept this simple truth and let it influence marriage selection human progress will cease" (Davenport 1). He supported classifying people in relation to their social traits and noted how "matings, even among cultured people, seem to be made at haphazard" (Davenport 7-10).

As the founding director of the Station for Experimental Evolution at Cold Spring Harbor, Davenport gathered family pedigrees on approximately three quarters of a million families. He used the sources to show patterns of inheritance in certain traits, and

he then used his results to make generalizations about various segments of society (Barondess online). He delineated large families by their genealogies and showed how certain types of behaviors are linked to certain types of people and commented on the differential birthrates and worth of immigrants (Selden 6).

Nationality and socioeconomic class determined one's worth, and thus, should determine one's ability, to procreate, according to eugenicists' ideology. Having noticed that the better educated and more successful were exercising the use of birth control and having less children than those who were poorly educated and lower in social class, eugenicists set out to encourage contraception for the latter group. Margaret Sanger helped set up the first family planning clinic in New York City during World War I at the risk of being prosecuted for public obscenity. Except for Massachusetts and Connecticut, contraception had been legalized in all states by the 1940s (Selden 33).

Naturalists and authoritative nativists led eugenic organizations and molded social and educational policies that would execute eugenics on a larger scale. They hoped that by applying such principles, they could better control human procreation. In 1914, eugenicists and euthenicists (those supporting environmental reform) met in Battle Creek, Michigan, for the First National Conference on Race Betterment. Poster exhibits, lectures, and discussions by the attendees brought the conference a full spectrum of varying opinions on reducing social issues to biological causes. Missing from the conference was a "discussion of a just distribution of materials as well as intellectual capital in the face of increasing global competition and social inequities "(Selden 9). One year later the conferees held their Second National Race Betterment Conference to

"assemble and discuss the evidence of race deterioration and to promote race betterment" (Selden 9-10).

In 1918, New York City saw the birth of another eugenic organization—the Galton Society; the society's main focus advertised racial and political ends based on racial differentiation of human traits. Achieving this goal would remove southern and eastern European immigrants and Native and African Americans from the scene of national progress and set them apart as ensuring society's downfall. Not only was the Galton Society developing discriminatory eugenic policies, but it also encouraged staunch racism. "That Society would prove to be yet another organization placing the needs of race and state above those of the individual" (Selden 12).

Members of the Galton Society cultivated prejudiced tendencies largely directed at specific races and socioeconomic groups. For example, Davenport believed that the Hebrews, Italians, Poles, and Irish were biologically different races, and he went on to make assumptions on each based on his research. He spent the majority of his book classifying his collection of pedigrees into familial inheritance patters of traits, equating the social significance of eye color and eczema alongside features as subjective as handwriting and musical ability.

He also discussed migration patterns and commented on the contributions and liabilities that each race of people brought to society. He wrote, "The traits that the great immigration from the south of Ireland brought were, on the one hand, alcoholism, considerable mental defectiveness and a tendency to tuberculosis; on the other, sympathy, chastity and leadership of men" (Davenport 213). More complimentary of the Germans, Davenport states, "Great numbers settle in the cities, make useful clerks, and often rise to

positions of trust. Germans are, as a rule, thrifty, intelligent, and honest. They have a love of art and . . . have formed one of the most desirable classes of our immigrants" (Davenport 214). To overview the highlights from other races, he explained that Italians tend to personal violence and crime, and Poles, though clannish, are often independent (Barondess online). Davenport took his ideas, and with the support of various eugenic organizations, helped launch a widespread campaign for birth control, segregation, and sterilization of "defective" persons that he thought endangered the desirable germ plasm (Barondess online).

American Sterilization Program

In 1910, Davenport invited Harry Laughlin to serve as superintendent of the Eugenics Record Office. Laughlin would later be a key figure in drafting the sterilization laws, in some states carried on for decades since World War I. The sterilization laws were quite similar to those more widely enforced in Nazi Germany, which were originally modeled on Laughlin's draft (Barondess 314). The United States eugenic sterilization laws inspired other nations like Canada, Sweden, Norway, Finland, France, and Japan to develop their own programs, some of which continued until quite recently (1970s) (Barondess online).

Although American eugenicists never achieved a national sterilization policy, they did make strides in many states. The first came in 1907 when Indiana passed a law for sterilization to "prevent the procreation of confirmed criminals, idiots, imbeciles, and rapists" (Selden 34). Oregon upheld a program whereby a "Eugenics Commissioner...has the authority to comb the state for degenerates and enforce

sterilization" (Selden 44). A board of physicians and other professionals had the power to determine who would be sterilized, but American systems "allowed for open criticism and for legal redress" (Lifton 24).

Occasionally a case would challenge the physicians' recommendation to sterilize on the grounds that this procedure qualified as "unusual" punishment and did not treat like persons in a similar manner, according to the Equal Protection Clause of the Constitution. Eventually the sterilization laws relaxed and extended to include criminals, the mentally retarded, and the mentally ill as suitable subjects (Lynn 231). Twelve states had adopted some form of sterilization legislation by 1913, and by 1931, 30 states were following suit (Lynn 34).

Occasionally orders for sterilization were challenged up the ranks of the court system. In a 1927 test case, the Supreme Court upheld a Virginia state sterilization decision in the matter of *Buck v. Bell*. The case involved Carrie Buck, an unmarried 17-year-old white girl from Virginia, who was forced against her will by her grandmother into a state institution on the grounds that she was mentally retarded. Carrie, an illegitimate child herself, gave birth to a baby girl named Vivian, diagnosed by a social worker as also being mentally retarded. In 1924, the state institute evaluated Carrie and recommended her sterilization, and the case eventually rose through appeals as high as the Supreme Court. Justice Oliver Wendell Holmes stated the Supreme Court's decision:

> We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the state for these lesser sacrifices . . . in order to prevent our being swamped with incompetence. It is better for all the world if, instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit for continuing their kind. The principle that sustains compulsory vaccination is broad

> enough to cover cutting the Fallopian tubes. Three generations of imbeciles are enough (Lynn 232).

Holmes believed that some social rights can override an individual's right to have children and pass on their socially unacceptable genes. The state maintained its right to make a judgment and intervene.

By 1935, the government had allowed approximately 20,000 sterilizations. The American Civil Liberties Union records that the nation continued to sterilize unfit individuals well into the 1970s and claimed 60,000 nationwide. California claimed the most sterilizations with 20,000 involuntary procedures, and Virginia followed behind with 8,000 (ACLU). Involuntary sterilizations eventually ceased due to pressures from civil liberties organizations, changes in public sentiment, and other legal challenges (Lynn 34). Since the 1980s, states have offered help groups and awareness media to contact the sterilized individuals and serve as an apology for the states' intrusion into the private lives of individuals (ACLU).

Eugenics Fairs and Exhibits

Eugenics had reached a level of international concern by the time the American Museum of Natural History hosted the Second International Congress of Eugenics in 1921; the overarching theme remained increasing the fecundity of Northern Europeans and controlling the reproduction of the poorer classes in society. Early American eugenicists were often members of the same groups, which frequently changed names and grew in influence.

In America, members from many eugenics organizations formed the Ad Interim Committee of the 1921 Congress of Eugenics, which soon changed names to the Eugenics Committee of the United States of America in 1922. One year later the group again sought a new name as the Eugenics Society of the United States of America and finally settled on the American Eugenics Society (AES) in 1925. To reach the masses, the AES sponsored exhibits and fairs that traveled across the country advertising and propagandizing their social policies, trying to attract individuals and families to take eugenic concerns into their own hands. Through the press, books, pamphlets, lectures, exhibits, and other literature, the AES sought to educate, mold popular opinion, and recruit followers.

The first major showcase of eugenics in popular society came in 1926 with Mendel's Theatre at the Sesqui-Centennial Exhibition in Philadelphia. The AES sought to impress upon viewers the simple Mendelian inheritance and how discrete traits are transmitted to future generations. Exhibits also reinforced the impression that the pattern could also explain complex features, such as intelligence, character, and other social values.

*Mendel's Theatre displaying inheritance of hair color**

Not only did the exhibits and posters aim to educate, they also brought to eugenics a sense of economic strain with a cost-benefit analysis of each individual's worth in society. For example, a display titled "Some

People Are Born to Be a Burden on the Rest" held several blinking lights timed to flash once every set period of seconds. The given intervals visually expressed the number of times an action occurred: every 16 seconds a person is born in America; every 15 seconds a person of less than desirable heredity costs the public $100; only once every 7.5 minutes is a person of higher grade heritage born. Obviously the burdens outweigh the contributing members of society, forcing viewers to carry away the message that the well being of future generations is at financial risk, not to mention social stake.

At the Kansas Free Fair of 1929, posters displayed the mathematics of heredity. The charts illuminated "patterns of 'normal,' 'tainted,' and 'abnormal' offspring" and how these compared to Mendel's inheritance of pea plants (Selden 25). In a blatant misuse of the concept of Mendelian inheritance, sample family trees would note the ratios and features of each member to show the possible demise of society should the public not heed eugenicists' warnings.

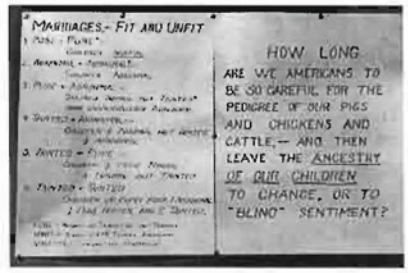


*Chart for fit and unfit marriages showing the products of unions pairing pure, tainted, abnormal, and normal individuals**

To encourage continued thought on the subject, the 1926 exhibit also advertised an upcoming Fitter Families Contest hosted in the Eastern States Exhibition in Massachusetts. The 1928 Race Betterment Conference published proceedings explaining the achievements and attributes of the contestants, grading them on various factors. "Groups of prominent citizens judged participating families for their 'ultimate fitness for citizenship and for parenthood'" (Selden 33). Without an objective set of standards by

which to group individuals and families, judges were permitted to use their personal judgment when ranking participants. A typical contestant was judged based on one's social involvement in the community, religious and political affiliation, a urinalysis sample, personal hygiene, education, economic status, and family size. Winners of the competitions received a eugenics medal donning the statement, "Yea, I have a Goodly Heritage."

*Fitter Family Medal given to winning families**

Having earned a worthy place in the eugenics framework, winners were encouraged to marry winners and not to yield to simple "blind sentiment" when choosing a mate. Those branded with a lower score could never hope to achieve a valuable place in America's future, according to the underlying tones from the contests' judges. The same value system was also listed for the Better Babies Movement, which focused on the features of children in the same manner.

Intelligence Testing

Promoting good breeding comprised only part of eugenicists' plan; they also felt it necessary to enforce negative eugenic plans to limit poorly chosen unions. One promising method for classifying individuals on their social worth was the use of intelligence tests, which were developed by Frenchman Alfred Binet. In 1904 Binet, director of the psychology laboratory at Sorbonne, was commissioned to develop

techniques for identifying children in need of extra attention in the classroom. The tests he designed would match children to their mental age and grade them on their proficiency. Binet aimed to help and improve children deficient in certain areas (Gould 178-179, 182). Seeing the possible list of applications for limiting with his new tool, Binet warned against taking a hereditarian interpretation of the IQ tests (Gould 29). Disregarding the caveat, American psychologist H.H. Goddard brought Alfred Binet's intelligence quotient test to the States and hoped to use the test and scale as a tool to weed out the defective's threats from both abroad and at home.

Goddard rejoiced that the government had heightened admission standards for aliens entering the country. Believing he could track the Mendelian gene for intelligence, he wanted to identify the feebleminded and prevent them from reproducing. He translated the tests and administered them to the children at the Vineland Training School for Feebleminded Girls and Boys in New Jersey, where he was director of research. He wanted to evaluate the inhabitants, which he called "morons," another word for "high-grade" defectives (Gould 188-189).

While in the process of gathering information on some of his studies at the institute, Goddard learned about a group of paupers in New Jersey. While the family could have been real, the family name Kallikak was fictitious. In 1912, Goddard wrote *The Kallikak Family* and traced the supposed group's lineage back to the union of a socially upstanding man and a feebleminded bar maid. The descendents were considered a bad lot. Later, the same man married a Quaker woman and started a family of well-regarded citizens. Goddard used this myth to facilitate support for negative eugenics like sterilization and segregation to stop the ongoing tide of feeblemindedness. The example,

along with other family cases like the Jukes and the Ishmaelites, was commonly cited in educational material on destructive traits and inheritance (Selden 65, 98). Goddard believed that the social problems these families encountered were not necessarily due to their stupidity, but more so from a link between lower intelligence and immorality (Gould 190). With this association proven, eugenicists were making headway in demonstrating genetic causes of social immorality.

By 1932, the Third International Congress of Eugenics lost some of the enthusiasm boasted in the earlier sessions because the world economic crisis and depression would have made many competitive participants unsuccessful. Still, the demands for racial purity and fitter families were heard in America and echoed by an ever-growing movement in Germany. "While [the more stringent German style of] eugenics would never become national policy in the United States, organizations devoted to its dissemination would attempt to influence American schools. ...Eugenics would never control American education," but it left an imprint in educational policies for decades (Selden 37).

Eugenics in Education

Education was a valuable tool that early American eugenicists wielded within spheres of influence. One potential fellow invited to join the Galton Society was Professor Robert M. Yerkes, a leading educational psychologist famous for his involvement in crafting the military evaluation tests. Yerkes was also president of the American Psychological Association and spoke to the National Education Association on

the prospect of a long-term study on the "nature of children who later became social blights or social blessings" (Selden 14-15). Eugenicists felt there was much ground to be laid in the educational field and sought to rid school systems of programs aiding children with little potential. Leaders did, however, support programs for gifted children and sought to encourage their academic and social pursuits.

Eugenicists promoted their cause in the classroom, and slowly education became a target for introducing eugenic applications. Authors Paul Popenoe and Roswell Johnson cited Davenport in their college textbook *Applied Eugenics* (1918), and are quoted, "The educational system should be a sieve through which all children in the country are passed . . . which will enable the teacher to determine just how far it is profitable to educate each child that he may lead a life of greatest possible usefulness to the state and happiness to himself" (Selden 54). While major strides in eugenics did not become popular in mainstream education until after World War II, eugenic literature quickly permeated newspaper stands and magazines around the nation.

The AES and ERO published numerous eugenic-related literature, some of which consisted of radical social ideas that were never entertained or attempted. *The Eugenical News* in particular, broadcasted racist ideas in the United States and totalitarian political positions abroad. One featured article expressed alarm that California and the western states were being invaded by "Mexican Peons" who were introducing "another serious color problem into American life" (Selden 44). A different article explained that feminism would preserve women and save society from its seeming impending barbarism. Another article openly recommended sterilizing "undesirable types."

Echoing Theodore Roosevelt's fears of "racial suicide," eugenicists pushed for legislation to control the admission of immigrants, favoring those they considered desirable and restricting those undesirable (Selden 40). Throughout the late 19th century, the majority of immigrants entering the United States had come from southern and eastern Europe, which eugenicists had widely considered to be of inferior stock. Eugenicist Harry Laughlin published a study showing that more immigrants from these areas occupied mental institutions and expressed concern that these newer immigrants were biologically inferior and jeopardized the blood of the nation (Lynn *Eugenics* 35). Also, it was assumed that since a large part of the early American population came from northwestern Europe, immigrants from this region assimilated more easily into American society. One success in filtering immigration came in the 1924 Immigration Act, which set quotas for immigrants from different countries based on the 1890 census. The act stipulated that each European nation's annual immigration should be limited to two percent of U.S. residents born in that respective country. Since the majority of Americans had roots in northwest Europe, the goal of the act was to reduce arrivals from southern and eastern Europe.

Immigration Issues

Under the urging of Yerkes disciple Carl Brigham at Princeton University, immigrants were also given intelligence tests before entering the United States. The origin of the tests lies in military tests, which Yerkes designed to test innate intelligence and administered to all army recruits during World War I. Two tests were available:

Alpha tests were offered to the literate, and those who failed the Alpha exam could take the Beta test, a pictorial exam with symbols and numbers. "Tests could now rank and stream everybody; the era of mass testing had begun" (Gould 224-225).

The tests, given in English, were more accurately indexes of familiarity with American culture (Gould 26). Not surprisingly, immigrants who did not speak English did not fare as well as those who did. This fact was taken to justify the claim that these newer immigrants, especially those from southern and eastern Europe, were of lower intelligence. The tests were supportive evidence that immigrants from such areas endangered the national progress and welfare. The general message remains, "determinist arguments for ranking people according to a single scale of intelligence, no matter how numerically sophisticated, have recorded little more than social prejudice" (Gould 60).

Intelligence and Education

Character and intelligence rated high in the priorities for socially valuing individuals and ethnic groups. While both of these features are largely understood to be subjective depending on the observer, some professionals have attempted to quantify and rank levels of each, especially intelligence when involving eugenic motives "Once intelligence becomes an entity, standard procedures of science virtually dictate that a location and physical substrate be sought for it. Since the brain is the seat of mentality, intelligence must reside there" (Gould 56). Several different measuring schemes have been tried to correlate between the volume of brain space in the cranium and the

intelligence of an individual or an ethnic group. Much of the data supporting these theories has been refuted in later studies.

One active representative of the Race Betterment Foundation, H.H. Kellogg, wrote a piece for the tract on the desire for people of noted intelligence to preserve their genes for the future of the nation. Kellogg suggested creating a "eugenic aristocracy: 'a group of men and women who are willing to keep themselves unspotted from the world, a nucleus from which in time may develop a new and better human race" (Selden 45-46). Such ideas eventually found outlets: some Nobel Laureates have contributed sperm samples frozen and stored by the California Repository for Germinal Choice, guaranteeing that their genetic material will remain untainted until an appropriate match has been made (Selden 46).

With such a heavy emphasis on intelligence in eugenics, the ultimate culmination and momentum lie in education. Schools were pulpits for eugenicists, and their concerns were integrated into the agenda of influential educational organizations like the National Education Association. At the 1916 annual conference, Dr. Helen Putnam informed her fellow teachers, "If humanity is to survive, individualism and nationalism must conform to the laws of racial well-being" (Selden 57, 63). Eugenics had a stronghold in principle and on paper. For example, many writers for biology textbooks continued to associated genetics and eugenics, even after the popular eugenics social policies were dropped for reasons that eugenics was inherently racist, prejudiced, and pseudoscientific.

Eugenics researcher Steven Selden conducted a study of 41 high school and college textbooks and discovered that "over 87% of the volume included eugenics as a topic and more than 70% recommended eugenics as a legitimate science" (Selden 64). A

continuing theme throughout the eugenics' sections of the books was the reference to social and political attitudes for a discreet period in history rather than the scientific data that renders credibility to the topic. It is not surprising that eugenic undertones have clung to some areas of education since eugenics had such a strong presence in educational material. For example, psychologists still use IQ when evaluating the performance of some students, but the intentions for demonstrating IQ have changed course.

To dismantle the myth surrounding IQ, Binet's original caveats come back into the picture. The tests should serve as a device to identify children who may require extra attention, not to rank children. Intelligence is difficult, if not impossible, to quantify and test when also considering test takers' varying levels of access to education, cultural background, and other factors that could bias a report. Environment cannot be excluded when studying the factors that contribute to a complex characteristic like intelligence. To even attempt to quantify such a feature means that its components are identified and that society has agreed upon the basic definition of the term, which is unlikely, considering differences in opinion even from those termed specialists or experts in the matter.

Eugenicists "assumed that intelligence was largely inherited and developed a series of specious arguments confusing cultural differences with innate properties" (Gould 187). To claim that intelligence is heritable also means that all contributing factors, genetic and environmental, have been identified at different stages in life. Such requirements are far from being widely established. "Much of the elaborate statistical work performed by testers during the past fifty years provides no independent confirmation for the proposition that tests measure intelligence, but merely establishes

correlation with a preconceived and unquestioned standard" (Gould 207). This pattern of approach is similar in many of the social and racial characteristics that were once considered single entities.

The Decline of Eugenics

The American eugenics institutes and groups that had supported or sympathized with Nazi Germany closed quickly when the Holocaust's atrocities came to surface. People developed a fear of the "slippery slope:" the path of making state and social policies ultimately leading from valuing certain traits to discriminating against specific peoples (Hood *Human Genome Project* 28). After World War II, it became clear that eugenics was concerned with nonphysical human differences, rather social differences among individuals. The public made a decision on how it was to proceed in making human progress: it began to welcome diversity instead of selecting a few superior traits and modeling on them.

Society accepted that it was pluralistic, and not monolithic in its makeup. The extremist realization policies that enabled doctors and politicians to differentially value individuals and groups within society eventually encountered public resistance and caused disputes. The 1940s sense of determination in eugenics was exchanged in the 1950s and 1960s when consensus on how to best reach eugenic goals failed.

The government allowed, and in some cases openly supported, racist policies and valued individuals based on their contributions and worth to the state while robbing or limiting individuals' right to reproduce. Politicians and doctors held a powerful place in the lives of those they are supposed to provide care and protect. Both politicians and

doctors actively determined which human characteristics were desirable and undesirable; they selected people on those bases and treated them differently because of it. Leaders in the medical and political fields set values on individuals' lives based on their differential worth, which was crudely founded on their understanding of genetics at that time.

The argument for eugenics was actually a social policy based on a supposedly genetic foundation. Since the time of its popularity, advances in genetics have shown that gene-gene and gene-environment interaction are more complex than had been previously imagined. Geneticists are gaining a greater understanding of the intricate mechanisms at the gene level, and genetic options are more open and health care is more accessible than ever before. As more and more genes and genomes are being fully mapped, researchers tend to look more at an individual's genetic makeup. Pharmaceutical companies, health insurance groups, and employers, among others, will have a vested interest in knowing about each individual's genetic makeup. Government involvement in the field can both support research or limit procedures for individuals and groups of the population.

A Focus on the Individual

The government's former proactive outlook with eugenics now has softened into a more restricting role in the face of the growing genetic industry. The focus in selecting genetic features and responsibility in exercising reproductive rights has shifted from the government to the individual. Just how strong a grip of control the government is prepared to wield in new areas of genetic research remains to be seen. With somatic cell and germ line research, therapy, and enhancement to open new doors to individuals, the

power to restrict or support certain technologies and procedures without descending the slippery slope becomes a sticky task indeed for the government and the public.

Modern Molecular Genetics

Instead of continuing with the goal of either limiting or encouraging reproduction among certain individuals in the population, eugenics has survived scientific breakthroughs and continued to develop along the lines of human biotechnology. Modern biotechnology has replaced the classical eugenics for a more specific and scientific approach to preventing disease and its transmission to future generations (Lynn *Eugenics* 243). Genetic testing makes available knowledge about an individual's genetic constitution, and molecular genetics works to illuminate the specific genetic causes and interactions between genes and their products expressed as the phenotype. With a greater scientific understanding of disease, genetics can take on a more preventative role and provide an individual with more freedom in personal health and in reproductive choice, a rising field called reprogenetics (Silver 67).

Individuals can practice autonomy when considering their own health or the condition of their future offspring thanks to genetic options like engineering, therapy, and enhancement. The power of the state to regulate is being replaced by the power of the market, the desire of an individual to increase one's health and happiness and to decrease one's chances for disease. The level of competitiveness will be a determining factor for individuals evaluating what types of genetic intervention are appealing (van Steenbergen 696). However, "the mere increase in quantity of information available or number of options to choose from does not guarantee either a better ability to choose, or an ability to

choose better" (Lillehammer 596). Some type of guidance or perspective is needed to make informed and educated decisions with all the options available today.

The first effort to provide support for genetic decisions came in 1947 when Sheldon Reed suggested genetic counseling for individuals. In the 1950s and 1960s, genetic counseling replaced eugenics. In 1969, Sarah Lawrence College offered the first master's program as a professional degree in genetic counseling for individuals. The 1960s and 1970s showed a shift in directed counseling to a more client-centered counseling for individuals. While eugenics was formerly often associated in the public with compulsory programs, it now has become more of a personal matter to individuals who chose to regard eugenics in their personal lives and consider its applications for their future children.

Nondirectiveness, the antithesis of the paternalistic approach, is appealing for both the counselor and the individual seeking advice. This preferable approach respects an individual's autonomy and dissociates the field from the coerciveness feared under early eugenics. It also creates an emotional distance and ensures that the professional will not be held legally responsible for the client's decisions (Williams et al. 339).

Artificial Insemination and Egg Donation

The most commonly accepted and earliest reproductive options for individuals were artificial insemination and egg donation. Both of these are available to the population at large and at the expense of the individual desiring the reproductive procedures. Both can also reveal eugenic purposes when the individual's advertisements

specifically request specimens of high quality or from persons with certain characteristics. Take for example the sperm bank that keeps samples from Nobel Laureates in the California repository mentioned in the previous section. Egg donation developed later.

In the 1990s a group of infertile American women sought "eggs of good genetic quality" from students at elite colleges like Yale, Harvard, and Stanford. Often the advertisements explicitly requested "the donors should have high SAT scores, good college grades, and certain physical characteristics, such as blue eyes." (Lynn 247) Another couple advertised a request for an egg donated from an athletic student at a top university (abcnews). "They are willing to pay a premium for eggs likely to be of good genetic quality" (Lynn 247). Artificial insemination and egg donation has taken a step up the eugenic ladder from being merely a reproductive outlet to becoming a method by which individuals can chose the genetic features or quality of their offspring. Buyers do not only want to have children, but they also wish to control or influence their makeup.

Physical characteristics have a strong attraction for individuals selecting the donors' eggs or sperm. In 1999, the Internet began to advertise the sale of models' eggs for prices as high as $150,000. The offers play on the point that models are often considered attractive by much of society. The connection is then made that many physical characteristics (like slimness and beauty) are heritable. Readers are to associate their physical beauty with their overall potential, success, and happiness in life. Eugenics presents itself in these advertisements as a way for individuals to ensure that they will have beautiful children, which supposedly increases the offspring's quality of life.

Fashion photographer Ron Harris set up the website offering eight models' eggs for sale. His says on his site, "Choosing eggs from beautiful women will profoundly increase the success of your children and your children's children, for centuries to come" (abcnews). Much of the concept of beauty depends on social views, and buyers of the eggs or sperm are paying to have more socially acceptable or enhanced children.

Genetic Screening

Individuals can also undergo genetic screening to determine whether or not they are carriers of certain genetic traits. This technology allows individuals to determine one's genotype, or genetic makeup, and not simply the phenotype, the expression of one's genes. Early eugenicists had longed to be able to test an individual to determine ones' genotype so that they knew what genes one had even if the product was masked or was not phenotypically expressed. The object is to identify certain genes for known traits. The first testing method, amniocentesis, involves collecting the amniotic fluid for analysis by inserting a needle into the pregnant woman's abdomen.

Developed in the 1930s, amniocentesis was first developed as a test for a special blood disorder. In the 1950s, doctors in Denmark used the test to determine the sex of the fetus; the test also diagnosed expecting women who were at high risk of carrying hemophilia. In 1963, Massachusetts was the first state to start mandatory genetic testing of newborns for phenylketonuria (PKU). Again amniocentesis played a key role in antenatal testing. When diagnosed with PKU, doctors prescribed a restricted diet to abate the symptoms of the disease and proved that environment could alter the effects of genes.

Environmentalists applauded the handling of PKU as a test case that exposed the flaws of genetic determinism.

In 1967, amniocentesis's applications included testing for Down's syndrome, and a year later it was instrumental in the first decision to abort a Down's fetus. By the 1980s, the test became standard procedure for detecting genetic diseases and fetal disorders. As a eugenic device, the procedure allows expecting parents to know the chances that their child will develop a disease with the objective of making an informed decision on whether or not to abort the fetus. In the mid-1960s, laws changed to permit such therapeutic abortions.

Four more techniques became available for prenatal testing throughout the 1980s and 1990s: ultrasound scan, maternal serum screening, fetal biopsy, and chorion villus sampling. These new tests helped reliably detect genetic defects and reduce the incidence of anencephaly, spina bifida, and hydrocephalus. Prenatal diagnoses had resulted in reducing the birth incidence of genetic diseases and disorders by 5 percent in the 1990s (Lynn *Eugenics* 251).

Preimplanting Embryos

Instead of testing fetuses for certain genetic qualities, it is now possible to implant an embryo with a certain sex or with desirable genetic characteristics. Embryo biopsy, as the procedure is called, requires growing eight cells from an embryo in vitro and testing them individually for genetic defects. An embryo free of the tested disorders or with a specific sex could then be implanted to mature in the mother. Also, by preimplanting an embryo clear of specific defects, the procedure increases the probability that parents will

have a child that will not suffer from the tested genetic diseases. Furthermore, parents can avoid the stress of a possible abortion when the fetus can be reliably tested.

Genetic traits are often tracked by markers. "Research linking complex human behaviors with biological markers is still seen by many citizens as having an important role to play in public policy, and it continues to be open to the public's wishes and hereditarian hopes. ... Ties between human behavior and genetic substrates are far more complex that popular renderings would lead one to believe" (Selden 132). While there may be similar stretches of DNA between individuals that serve as markers correlating the presence of particular gene forms, researchers have yet to identify specific genes for some behaviors and physical features. There must first be an understood relationship between a behavior and a marker, which is not clear in markers that have been marketed in the public for homosexuality, shyness, affinity for novelty, and other behaviors that have graced the news.

The media and public have encouraged the popular assumption that there is a "gene for" each of the majority of phenotypic characteristics and behaviors. Even with a best-case scenario assuming that the causally determined genotypic property can be independently isolated and understood, it is commonly thought that one could predict the phenotypic property given its genotypic property at 100 percent (Lillehammer 589). Yet, this is not always the case, as seen with PKU. Furthermore, correlation is not the equivalent of causation, and a mere association in research does not qualify as a relationship between behavior and marker and does not warrant public policy. Such behaviors or phenotypes must be clearly defined in scientific terms if they are to be the foundation of public policy. Complex behaviors are often ambiguously identified and

incompletely understood, and thus it is impossible at this point to claim a link between a marker or gene and a behavior or trait that is to be recognized.

Human Genome Project

Much of the information concerning new genetic procedures is related to the Human Genome Project (HGP), which began in 1990 under the mutual sponsoring of the U.S. Department of Energy (DOE) and National Institutes of Health (NIH). The Human Genome Project is an international collaboration of 18 countries to determine the complete content of the human genome. The project will provide researchers with several different kinds of information. It will note genetic markers that help with locating genes of interest throughout the genome. A sequence map puts the information in a linear order. Most importantly, researchers hope to link information derived under the project into a global system that can help decipher the complex biological networks in which genes are engaged (Hood *Human Genome Project* 18-19).

By making available the entire sequence of the human genome, all 30,000 or so human genes can be identified. This could, in turn, contribute to understanding disease and health. The official website explains, "The ultimate goal is to use this information to develop new ways to treat, cure, or even prevent the thousands of diseases that afflict humankind" (HGP). Applications of the HGP are wide and include gene therapy and enhancement, genetic engineering, and cloning.

Gene therapy involves supplementing a disease-causing or abnormal gene with a healthy or normal gene. The normal copy is inserted by way of some type of vector into the human genome, and the new gene would be replicated just as would any other gene in

the nucleus. So, the therapy is continuous, and the normal gene dilutes or eliminates the problems caused by the abnormal gene. The regulatory code that controls the gene at various stages still requires some work. For example, the gene alone must determine when it should be expressed, the degree of its expression, in which cells it should turn on or off, and its ability to communicate with other genes to network and achieve its overall goal (Hood *After the Genome* 71). Currently, viruses are the best available vectors to safely deliver the therapeutic gene to the patient's target cells, but viruses do have transport and regulating disadvantages. The body can also reject the new addition if it experiences an autoimmune reaction.

Researchers are currently developing newer therapeutic techniques to introduce an entire chromosome to the human genome. With the creation of a 47^{th} chromosome, researchers would avoid merely inserting one or two confined genes; the artificial chromosome in this therapy would serve as a dock for carry cassettes of specific genes and their regulating sequences to be introduced into the genome (Campbell and Stock 10). While such a chromosome would not be heritable, the option is attractive for certain medical areas such as AIDS immunity that could rely on the interaction of multiple genes. Also, due to the complex interactions between genes, different genes may behave differently between individuals. The Food and Drug Administration (FDA) has not yet approved any of the therapeutic gene treatments for sale, and the benefits are still short range, requiring multiple rounds before they are even effective.

Genetic Therapy

Therapy can be applied to either of the two types of body cells: germ cells or somatic cells. The body cells, or somatic cells, are targets for today's germline technology. Somatic interventions have a more limited scope—the individual being treated. With somatic cell therapy, just as with a vector introducing a new gene or artificial chromosome, the procedure encounters hurdles of how to best deliver the gene, control gene expression, and overcome immunological resistance. Germline therapy would avoid these difficulties in patients and offer a more permanent solution to certain diseases because the therapy would begin during the embryonic stage.

"Germline genetic manipulations are those made to 'germinal' or reproductive cells—the egg or sperm—and they can alter both the immediate patient and his or her descendants" (Campbell and Stock v). Understandably, the latter of the two interventions causes more concern among scientists and policymakers because researchers have not fully uncovered the implications of altering the human germ line in such a permanent manner. Although germline therapy is a complex and controversial procedure, geneticists refer to it as the *ultimate* form of therapy (Campbell and Stock in sic 9).

An upside of germline therapy, however, is that the procedure would inject the corrective genes directly into a fertilized egg, thereby introducing the changes into every cell instead of adding them one by one to each individual cell (Campbell and Stock 9). This procedure would help correct the defective Huntington's disease gene. There is concern in the medical community that altering, add, or subtracting a gene as a crucial component in perhaps multiple pathways and systems in the body may change the

pathway in ways unknown at this point in time (Hood *Human Genome Project* 24). Germline therapy is still not widely accepted in the genetics community as a safe and reliable method of therapy, but it is virtually within the expertise of many in vitro fertilization (IVF) clinics that already offer preimplantation embryos. However, several U.S. states outlawed embryo selection in the 1990s (Lynn *Eugenics* 287). "The pressure to initiate germline gene therapy will not likely come from governments or dictators with a desire to improve the chances for their biological children to function effectively within our society" (Cappechi 32).

Genetic Enhancement

The proposed goal of germline therapy is genetic enhancement, defined as the "efforts to make individuals better than well, optimizing their capabilities by taking them from standard levels of performance to peak performance" (Rothman 155). Enhancement differs from therapy in that therapy is solely for the purpose of ameliorating a medical problem while enhancement improves an already preexisting feature or condition. Enhancement can also refer to any introduction of a gene for a purely cosmetic purpose.

As scientists gain a better understanding of which genes and alleles, a different form of the same gene, affect certain traits, parents will be attracted to the option of enhancing the genes of their children, perhaps even in the embryonic stage. At this point it becomes an issue of whether or not parents will have the right to determine the specific genetic makeup of their children. A 1980 New Jersey Supreme Court decision ruled "parents have the right to information regarding the genetic make-up of their children in

cases where the genetic make-up in question indicates that either the parents themselves of any future children are at risk of serious disease" (Lillehammer 595).

If parents can have the knowledge that their embryos are equally healthy and free of notable disease, and if parents already have the right to choose the sex of the child, the next optional step would allow parents to select particular traits, such as hair color and eye color, for their child. Then parents' preference for some genetic traits over others makes cosmetic genetic engineering subjective. Genetic modification "in human reproduction for any purpose ... will establish a role for genetic technology in raising aspirations of prospective parents for attaining a culturally defined... ideal of the genotype/phenotype of their progeny" (Krimsky 104). Furthermore, "raising potentially unrealized expectations of parents in the abilities of their unborn child is unlikely to be in the child's best interests" (Thomas 103). Biology professor Ruth Hubbard warns, "There is no way to accurately predict the effects of germline genetic engineering for a future person, much less for her or his descendents, because genes always function in concert with other factors" (Hubbard 109).

Removing the need for genetic intervention on the grounds of disease, parents have any standard by which to judge the superiority or inferiority of a trait. Again, social concerns enter the arena when valuing some traits as preferable to others. Which kinds of human traits should be enhanced is a consideration open for the individual. Without government involvement to limit the types of genetic techniques or applications, individuals have the right to make a decision on any personal grounds. Sociology professor Troy Duster cites an example of enhancing certain metabolic pathways in an athlete at the genetic level. "We have already seen diagnostic and therapeutic agents,

such as human growth hormone for extreme short stature, being promoted to parents who just want taller children. The health value of this hormone risks being minimized by a combination of forces around social categories" (Duster 191-192).

"Determining a benefit depends on needs, values, priorities and cultural expectations" (Renzong 1102). If a common and unspoken agreement becomes prevalent, those individuals not expressing those preferred traits or carrying the genes for them may become socially stigmatized. Differences among individuals may be seen as deficiencies and may be a source for discrimination (Renzong 1101). "Once these not favoured traits are known relevant to genes, these discriminations will be the ones on the basis of genes, or gene discrimination" (Renzong 1101). While many fear that such will be the case in the workplace or with health insurance companies, the government has made efforts to restrict the invasion of an individual's medical privacy.

Paul Miller, commissioner for the Equal Employment Opportunity Commission (EEOC), states his concern, "If employers are permitted to consider genetic information in making personnel decisions, people may be unfairly barred or removed from employment for reasons that are wholly unrelated to their ability to perform their jobs" (website). Genetic discrimination could seep into the workplace if an individual's privacy is not established. Medical records, family history, and genetic testing could become part of the background check when hiring.

The Americans with Disabilities Act (ADA) prohibits discrimination against a qualified individual with a disability but does not explicitly define genetic discrimination or address its applications. The Daschle-Kennedy bill makes a firm step; the bill is based on President Bill Clinton's executive order prohibiting the federal government from

considering genetic information when interacting with employees. In 1996, Congress passed the Health Insurance Portability and Accountability Act (HIPAA), which specifies that members of a group plan may not be denied or limited coverage based on certain medical factors, genetic information included. An individual receives the highest priority when one's genetic information is concerned. However, the overall collective ownership of genetic information may become a central issue in the future.

Genetic Patrimony

The concept of genetic patrimony includes the right that every individual claims to an untampered genetic heritage. Director of Gene Therapy Laboratories W. French Anderson explains, "Our rationalization for this freedom is that 'my body belongs to me.' But our genes do not belong to just ourselves. The gene pool belongs to all of society. No individual has a right to intentionally change the gene pool without the consent of society" (Campbell and Stock 47). In 1997, the European Convention on Human Rights and Biomedicine wrote Article 13, states, "An intervention seeking to modify the human genome may only be undertaken for preventative, diagnostic or therapeutic purposes and only if its aim is not to introduce any modification into the genome of any descendents" (Campbell and Stock 114). Government officials, policy makers, and scientists debate the extent to which the state should limit or be involved with the newer genetic techniques being introduced to the public (Campbell and Stock 4).

Conclusion

The eugenics policies the government pushed greatly depended on the political and social environment at the time of its application. Eugenics became a method for healing the nation's ills. During its early popularity, eugenics appealed to the upper elite, intellectuals, and government officials who saw eugenic policies, both positive and negative, as the solution to problems with immigration, and other areas. Ultimately, eugenics was applied to discriminate against certain communities within society. These groups were targeted because of their ethnic background, social status, or mental health.

Gradually scientists realized that environment plays a crucial role in gene expression, especially with those traits that involve multiple genes. Along with scientific breakthroughs shedding light on genetics, the atrocities associated with the Holocaust came to light. The government's support for racist and discriminating eugenic programs ceased. The government's regulatory policies lightened, and genetics became more of a health consideration for the individual. The scope of genetic research and depth of understanding today allows individuals great freedom for personal health and reproductive choice. The fact that individuals are more empowered does not ensure that social and political values will not seep into the motivations for genetic procedures.

The government again is reasserting its presence by limiting the genetic choices individuals have for their reproductive options as germline therapy and enhancement. Policy makers want to preserve the right of individuals to reproduce while also maintaining the genetic patrimony. Furthermore, the state has passed legislation to protect an individual's genetic information from insurance companies and employers to make private an individual's genetic constitution. While the individual maintains the

right to make his or her own choices about personal genetic information, individuals will possibly be motivated by competitive reasons to improve one's own health or the health of one's progeny. To help curb the molding of the gene pool by social pressures, the state must step in to ensure that genetic discrimination in practice does not mediate society's reproductive and personal health decisions.

Appendix A

Questionnaire 1

Case no. .....

Name of Institution: .....

in: .....

First and family name of patient: ..... maiden name: .....

Date of birth: ..... City: ..... District: .....

Last residence: ..... District: .....

Unmarr., marr., wid., div.: Relig: .. Race[a] .... Natlty: .....

Address of nearest relative: .....

.....

Regular visits and by whom (address): .....

.....

Guardian or Care-Giver (name, address): .....

.....

Cost-bearer: .... How long in this inst.: .....

In other Institutions, when and how long: .....

How long sick: .. From where and when transferred: .....

Twin yes/no ... Mentally ill blood relatives: .....

Diagnosis: .....

.....

Primary symptoms: .....

.....

Mainly bedridden? yes/no ... Very restless? yes/no ..... Confined? yes/no .....

Incurable phys. illness: yes/no ..... War casualty: yes/no .....

For schizophrenia: Recent case ..... Final stage .. good remission ...

For retardation: Debility: ..... Imbecile: .... Idiot: .....

For epilepsy: Psych. changes ..... Average freq. of attacks .....

For senile disorders: Very confused .... Soils self .....

Therapy (Insulin, Cardiazol, Malaria, Salvarsan, etc.): Lasting effect: yes/no .....

Referred on the basis of §51, §42b Crim. Code, etc. ..... By .....

Crime: ... Earlier criminal acts: .....

Type of Occupation: (Most exact description of work and *productivity,* e.g. Fieldwork, does not do much.—Locksmith's shop, good skilled worker.—No vague answers, such as housework, rather precise: cleaning room, etc. Always indicate also, whether constantly, frequently or only occasionally occupied)

.....

.....

Release expected soon: .....

[a]German or related blood (German-blooded), Jew, Jewish *Mischling* [half-breed] 1st or 2nd degree, Negro *(Mischling),* Gypsy *(Mischling),* etc.

Remarks: .....

Do not mark in this space.

.....

.....

.....

.....

..... Place, Date .....

.....

(Signature of medical director or his representative)

INSTRUCTION SHEET

To be followed in filling out the questionnaires

All patients are to be reported who

1. suffer from the diseases enumerated below and who within the institution can be occupied not at all or only at the most mechanical work (picking, etc.):
   Schizophrenia,
   Epilepsy (indicate if exogenous, war-related or other causes),
   Senile disorders,
   Therapy-resistant paralysis and other Lues [syphilitic] diseases,
   Retardation from whatever cause,
   Encephalitis,
   Huntington's chorea and other terminal neurological conditions;
   or
2. have been continuously in institutions for at least 5 years;
   or
3. are in custody as criminally insane;
   or
4. do not possess German citizenship or are not of German or related blood, giving/designating race[b] and nationality.

The questionnaires, to be filled out individually for each patient, are to be given serial numbers.

The questionnaires are to be filled out by typewriter whenever possible.

Due on .....

In the case of patients sent to this institution from outside the evacuation area, a (V) is to be placed behind the name.

In case the number of Questionnaire 1 forms sent are not sufficient, please order the number needed through my office.

[b]German or related blood (German-blooded), Jew, Jewish *Mischling* 1st or 2nd class, Negro, Negro *Mischling,* Gypsy, Gypsy *Mischling,* etc.

SOURCE: Questionnaire translated from Judgment in Hadamar Trial, Frankfurt/M., February–March 1947 (4 KLS 7/47), Landgericht Frankfurt. Instruction sheet from Heyde Trial Documents, pp. 210–11. Questionnaire and instruction sheet translated by Amy Hackett.

Appendix B

English sexual psychologist Havelock Ellis explained the various degrees of weakmindedness in his 1912 work, *The Task of Social Hygiene* (32).

While feeblemindedness may be used to generically describe all levels of mental weakness, there are three noted degrees congenital mental weakness:

1. feeblemindedness: with care and supervision, it is possible for an individual to work and earn a livelihood

2. imbecility: an individual is able to look after oneself, and sometimes only has enough mental capacity to be mischievous as a moral imbecile

3. idiocy: the lowest level where an individual has neither the intelligence nor the ability to look after oneself

Works Cited

1. ACLU. "Virginia Apologizes for Forced Sterilizations." (May 5, 2002) http://www.aclu.org.

2. Allen, Garland. "DNA and Human Behavior Genetics: Implications for the Criminal Justice System." *The Technology of Justice*. Washington University. 1-27.

3. Barondess, Jeremiah A. "Care of the Medical Ethos: Reflections on Social Darwinism, Racial Hygiene, and the Holocaust." *Annals of Internal Medicine*. 129 (1 December 1998): 891-898 [online].

   ---"Care of the Medical Ethos, With Some Comments on Research: Reflections After the Holocaust." *Perspectives in Biology and Medicine*. 43.3 (Spring 2000): 308-324.

   ---"Medicine Against Society: Lessons From the Third Reich." *JAMA*. vol. 276, no. 20 (27 November 1996): 1657-1661.

4. "Beautiful Harvest?" http://www.ABCnews.com. (October 1999)

5. Capecchi, Mario R. "Human Germline Gene Therapy: How and Why." Ed. Michael Yudell and Robert DeSalle. Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

6. Collins, Francis S. "Congressional Task Force on Health Records and Genetic Privacy Preventing Genetic Discrimination in Health Insurance." *National Human Genome Research Institute*. 22 July 1997. http://www.genome.gov/

7. Davenport, Charles. *Heredity in Relation to Eugenics*. New York: Henry Holt & Co., 1911.

8. Duster, Troy. "Social Side Effects of the New Human Molecular Genetic Diagnostics." Ed. Michael Yudell and Robert DeSalle. *The Genomic Revolution: Unveiling the Unity of Life*. Washington, D.C.: American Museum of Natural History, 2002.

9. Ellis, Havelock. *The Task of Social Hygiene*. Boston: Houghton Mifflin, 1912.

10. Gould, Stephen J. *The Mismeasure of Man*. New York: W.W. Norton, 1996.

11. Grodin, Michael A. and George J. Annas. "Legacies of Nuremberg: Medical Ethics and Human Rights." *JAMA*. vol. 276, no. 20. (27 November 1996): 1682-1683.

12. Hood, Leroy. "After the Genome Where Should We Go?" Ed. Michael Yudell and Robert DeSalle. *The Genomic Revolution: Unveiling the Unity of Life*. Washington, D.C.: American Museum of Natural History, 2002.

--- "The Human Genome Project—Launch Pad for Human Genetic Engineering." Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

13. Hubbard, Ruth. "Germline Manipulation." Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

14. "Image Archive on the Eugenics Movement." *DOLAN DNA LEARNING CENTER, COLD SPRING HARBOR LABORATORY.* http://www.eugenicsarchive.org/eugenics/
* all images in text.

15. Jewish Virtual Library. *Medical Experimentation*. http://www.us-israel.org/

16. Krimsky, Sheldon. "The Psychosocial Limits on Human Germlines Modification." Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

17. Lifton, Robert J. *The Nazi Doctors: Medical Killing and the Psychology of Genocide*. New York: Basic Books, 1986.

18. Lillehammer, Hallvard. "From Genes to Eugenics." *Stud. Hist. Phil. Biol. & Biomed. Sci.* vol. 32, no. 4. (2001): 589-600.

19. Lindsay, Jay. "Photographer Plans to Auction Models' Eggs Online." Associated Press. http://www.nandotimes.com

20. Lynn, Richard. *Dysgenics: Genetic Deterioration in Modern Populations*. London: Praeger, 1996.

--- *Eugenics: A Reassessment*. Westport: Praeger, 2001.

21. Miller, Paul. "Analyzing Genetic Discrimination in the Workplace." *Human Genome News*. vol. 12, nos. 1-2. February 2002. http://www.ornl.gov/

22. The National Human Genome Research Institute. *From Maps to Medicine: About the Human Genome Research Project*. http://www.nhgri.nih.gov

23. O'Reilly, Michael. "Nazi Medicine: The Perversion of the Noblest Profession." *Can. Med. Assoc. J.* 148, 5. (1993): 819-821.

24. Oxford English Dictionary online. keyword: "eugenics." http://www.oed.com

25. Paul, Diane B. *The Politics of Heredity: Essays on Eugenics, Biomedicine, and the Nature-Nurture Debate*. New York: State University of New York, 1998.

26. Proctor, Robert N. "Nazi Science and Nazi Medical Ethics: Some Myths and Misconceptions." *Perspectives in Biology and Medicine*. 43.3 (Spring 2000): 335-346.

27. Reich, Warren T. "The Care-Based Ethic of Nazi Medicine and the Moral Importance of What We Care About." *The American Journal of Bioethics*. vol. 1, no. 1. (Winter 2001): 64-72.

28. Renzong, Qiu. "Human Genome and Philosophy: What Ethical Challenge Will Human Genome Studies Bring to the Medical Practices in the 21st Century?" *Life Sciences*. 324 (2001): 1097-1102.

29. Rothman, David J. and Sheila M. Rothman. "Redesigning the Self: The Promise and Perils of Genetic Enhancement." Ed. Michael Yudell and Robert DeSalle. *The Genomic Revolution: Unveiling the Unity of Life*. Washington, D.C.: American Museum of Natural History, 2002.

30. Seidelman, William E. "The Legacy of Academic Medicine and Human Exploitation in the Third Reich." *Perspectives in Biology and Medicine*. 43.3 (Spring 2000): 325-334.

31. Selden, Steven. *Inheriting Shame: The Story of Eugenics and Racism in America*. New York: Teachers College, 1999.

32. Sidel, Victor W. "The Social Responsibilities of Health Professionals: Lessons From Their Role in Nazi Germany." *JAMA*. (27 November 1996) vol. 276, no. 20 (1679-1681.

33. Silver, Lee M. "Reprogenetics: How Reproductive and Genetic Thechnologies Will Be Combined to Provide New Opportunities for People to Reach Their Reproductive Goals." Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

34. Smith, George P. *The New Biology: Law, Ethics, and Biotechnology*. New York: Plenum, 1989.

35. Sofair, Andre N. and Lauris C. Kaldjian. "Eugenic Sterilization and a Qualified Nazi Analogy: The United States and Germany, 1930-1945." *Annals of Internal Medicine*. 132 (15 February 2000): 312-319.

36. Stock, Gregory and John Campbell. "A Vision for Practical Human Germline Engineering." Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

37. Thomas, Sandy. "Thoughts on the Ethics of Germline Engineering." Ed. Gregory Stock and John Campbell. *Engineering the Human Germline: An Exploration of the Science and Ethics of Altering the Genes We Pass to our Children*. New York: Oxford University, 2000.

38. Van Steenbergen, B. "Man on the Throne of God? The Societal Implications of the Bio-medical Revolution." *Futures*. 34 (2002): 693-700.

39. Weindling, Paul. "Eugenics and the Welfare State During the Weimar Republic." *State, Social Policy and Social Change in Germany 1880-1994*. Ed. W.R. Lee and Eve Rosenhaft. New York: Berg, 1997.

40. Williams, Clare, Priscilla Alderson, and Bobbie Farsides. "Is Nondirectiveness Possible Within the Context of Antenatal Screening and Testing?" *Social Science & Medicine*. 54 (2002): 339-347.